

## REMARKS

In connection with Applicants' Request for Continued Examination (RCE), Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the subject matter identified in caption, as amended, pursuant to and consistent with 37 C.F.R. § 1.114, and in light of the remarks which follow.

Claims 54-91 and 94-107 are present in this application. Claims 1-53, 92 and 93 were previously cancelled. Claims 54-88 remain under consideration in this application. Claims 89-91 and 94-106 have been withdrawn from consideration by the Examiner as being drawn to non-elected groups in a restriction requirement.

Claims 54, 63, 64, 68, 70, 72, 74, 75, 79, 80, 84-88 and 100 have been amended to properly recite the elements of the claims. Claim 58 has been amended to recite proper Markush language. Claim 78 has been amended to recite the definition of the elements D and E in the radical  $-C(D)=N-N(E)-(Alk)_a-$ . Support for this amendment is found in the specification on page 9, lines 28-32. Claim 85 has also been amended to correct the designation of the formula in the claim. Claim 107 has been amended to define the various elements in the formula. Support for this amendment is found in the specification at least on page 3, lines 9 and 27-30, page 8, lines 5-8 and 18-21 and page 19, line 28 - page 20.

No new matter has been introduced as a result of the foregoing amendments.

Applicants note for the record that the withdrawn claims have not been cancelled because the claims under consideration are composition claims and the withdrawn claims are directed to process of manufacturing and using the

compositions under consideration. The withdrawn claims may be amended as needed during further prosecution of the claims under consideration so that the withdrawn claims comprise the required elements to allow for rejoinder of the withdrawn claims upon allowance of the claims under consideration.

Applicants thank the Examiner for the withdrawal of the objections to claims 87 and 88 and the rejections of claims 64, 67 and 84-88 under 35 U.S.C. §112.

**35 U.S.C. §112, second paragraph rejection**

Claim 78 has been rejected under 35 U.S.C. §112, second paragraph as failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

Claim 78 recites the limitation that L can represent the radical "-C(D)=N-N(E)-(Alk)<sub>a</sub>". The Office Action indicates that there is insufficient antecedent basis for this limitation, as indicates that the position has been taken that D and E are as defined in claims 69 or claim 64.

Claim 78 depends from claim 75, which defines L as:

L represents a linear or branched hydrocarbon chain having from 1 to 6 chain members and optionally having one or more double or triple bonds, each of said chain members optionally being a heteroatom, each chain member being optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO<sub>2</sub>, -NRR', -CN, -CF<sub>3</sub>, -OH, -OAlkyl, -Aryl, and -Aralkyl,

The limitation "-C(D)=N-N(E)-(Alk)<sub>a</sub>" meets the definition of L in Claim 75 because "-C(D)=N-N(E)-(Alk)<sub>a</sub>" comprises a linear or branched hydrocarbon chain having from 1 to 6 chain members and optionally having one or more double or triple

bonds, each of said chain members optionally being a heteroatom. The limitation "-C(D)=N-N(E)-(Alk)<sub>a</sub>-" comprises a chain of "-C=N-N-(Alk)<sub>a</sub>-", which is: (1) a linear or branched hydrocarbon chain having from 1 to 6 chain members; (2) having one or more double or triple bonds; and (3) each of said chain members optionally being a heteroatom. Claim 78 has been amended to include the definitions of D and E. Therefore the limitation "-C(D)=N-N(E)-(Alk)<sub>a</sub>-" has antecedent basis in Claim 75.

Applicants respectfully submit that Claim 78 particularly points out and distinctly claims the subject matter which the applicant regards as the invention and the request that the rejection of these claims be withdrawn.

### **Double Patenting**

Claims 58, 59, 63-66, 68, 69, 75-77 and 84 have been provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over co-pending Application No. 10/580,422 as published in U.S. Patent Application Publication 2007/0083034 on April 12, 2007.

Applicants request that this matter be held in abeyance until such time as one of the applications is otherwise allowable. It is believed to be premature to file a terminal disclaimer before the scope of the claims has been settled. In the event that the Examiner is ready to allow this application except for this rejection, he is asked to contact the undersigned so that an appropriate terminal disclaimer can be promptly prepared and filed.

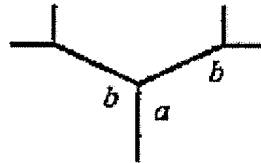
**35 U.S.C. §102(b) prior art rejections**

Claims 54-57, 60-62, 70-73, 79, 80, 83, 87 and 88 have been rejected under 35 U.S.C. §102(b) as being anticipated by Killat et al. (US 4,871,779).

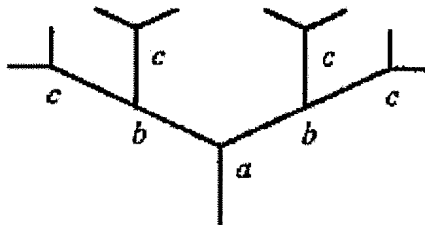
It is well established that in order to demonstrate anticipation over 35 U.S.C. § 102(b), each feature of the claim at issue must be found, either expressly described or under principles of inherency, in a single prior art reference. See, *Kalman v. Kimberly-Clark Corp.*, 218 USPQ 789 (Fed. Cir. 1983).

Killat discloses dendrimers which comprise generation chains (repeating units) of dendritic branches around a central core. Killat defines a "dendritic branch" as:

a tree-like branch which extends through at least two generations. As an illustration, an ordered second generation dendritic branch is depicted by the following configuration:



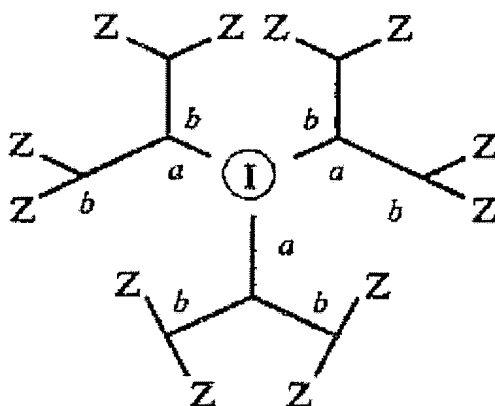
wherein "a" represents the first generation and "b" represents the second generation. An ordered, third generation dendritic branch is depicted by the following configuration:



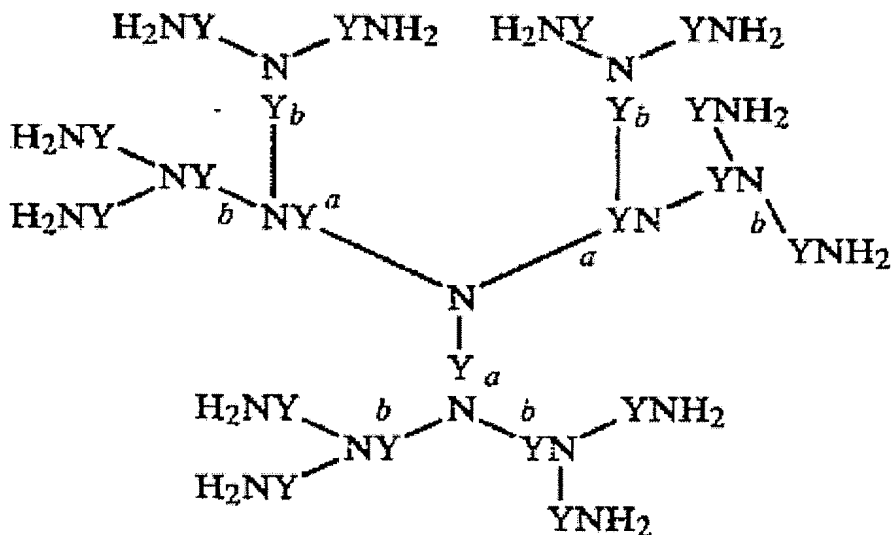
wherein "a" and "b" represent the first generation and second generation, respectively, and "c" represents the third generation. A primary characteristic of the ordered dendritic branch which

distinguishes it from conventional branches of conventional polymers is the uniform or essentially symmetrical character of the branches as shown in the foregoing illustrations. (col. 3, lines 35-39) (Emphasis added)

The end (terminal) branches are connected to terminal groups. Examples of the structures of such dendrimers are shown below, which are taken from col. 10.



A dendrimer of a ternary or trivalent core (I) which has three ordered, second generation dendritic branches.



A polyamidoamine polyamine dendrimer of a ternary or trivalent core which has three ordered, second generation dendritic branches, where Y is a divalent amide moiety.

The dendritic polymers of the instant invention require (1) a central core; (2) optional generation chains branching around the core; (3) an intermediate chain at the end of each generation chain that is present, or at the end of each bond around the core, where appropriate; and (4) a terminal group at the end of each intermediate chain. The structure of the dendritic polymers of the instant invention requires an intermediate chain linking the last generation chain to the terminal group.

The intermediate chain connecting the terminal group to the central core or generation chains distinguishes the claims of the instant invention from Killat. This can be shown by the following analysis. First, if one were to consider the last ordered generation chain (the "b" chain above) to be an intermediate chain, this would result in two intermediate chains being connected to the previous generation chain (the "a" chain). Claim 54 of the instant application provides that only one ("an") intermediate chain is located after the last generation chain and before the terminal group. Therefore under such an evaluation, Killat does not disclose the intermediate chain required by the instant claims.

Secondly, if one were to consider the two groups (-Z or -YNH<sub>2</sub>) bound to the last ordered generation chain (the b chain) of the Killat dendrimers as intermediate chains, this would result in two intermediate chains bound to the previous generation chain (the b chain). However, the claims of the instant invention require that only one intermediate chain is located after the last generation chain and that a terminal group is at the end of each intermediate chain. Such an interpretation would also result in only one terminal functionalized group (an ion exchange moiety). However, the claims of the instant invention require two phosphonic groups in each terminal

moiety. Therefore under such an evaluation, Killat does not disclose the intermediate chain required by the instant claims.

These conclusions are confirmed in the enclosed declaration under 37 C.F.R. § 1.132 by Dr. Anne-Marie Caminade, in which she concludes that the dendrimers disclosed in Killat do not comprise the intermediate chain required by the claims of the instant application.

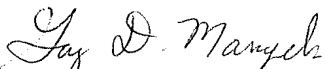
Therefore the instantly claimed dendrimers are distinct from those disclosed in Killat. Applicants respectfully submit that the claims are not anticipated by Killat and the rejection should be withdrawn.

In view of the foregoing, it is believed that entry of the proposed amendments should be allowed and that the record rejections cannot be maintained against the proposed claims once entered into this application. Further, favorable action in the form of a Notice of Allowance is believed to be next in order and is earnestly solicited.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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By:   
Gary D Mangels, Ph.D.  
Registration No. 55424

P.O. Box 1404  
Alexandria, VA 22313-1404  
703 836 6620